

ABSTRACT OF THE DISCLOSURE

A method of manufacturing a semiconductor device comprising forming a protective film on a surface of a lower-layer interconnection, and forming a multilayer-structured film by stacking a first porous film, a first non-porous film, a second porous film, and a second non-porous film on a surface of the protective film in this order, and forming a via hole and an interconnect trench. After a resist mask is removed, protective film exposed at a bottom of the via hole is removed. An upper-layer interconnection of dual damascene structure is formed by embedding an interconnect material in the via hole and the interconnect trench.

The first non-porous film includes a first layer has a high etching selectivity ratio relative to the protective film, and a second layer has a high etching selectivity ratio relative to the resist mask and the second porous film.